POTENSI DAN PEMANFAATAN BAHAN GALIAN BENTONIT DI KABUPATEN BOYOLALI, JAWA TENGAH

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ABSTRAK

Bahan galian bentonit di Kabupaten Boyolali, tersebar di beberapa kecamatan, diantaranya di Kecamatan Wonosegoro, Karanggede, Simo dan Klego. Sebaran dan sumberdaya yang paling besar terdapat di kecamatan Wonosegoro. Secara geologi, bentonit di Kabupaten Boyolali, berasosiasi dengan satuan batuan Formasi Kerek yang disusun oleh perselingan antara batulempung dan napal dan sisipan batupasir gampingan dan batupasir tufaan.

Secara megaskopis dalam keadaan kering dan segar bentonit di wilayah Boyolali umumnya berwarna abu-abu kebiruan hingga putih kecoklatan, bila basah dan lapuk berwarna coklat kehitaman hingga agak kekuningan. Tingkat mengembangnya relatif kecil, bahkan beberapa conto tidak menunjukkan sifat mengembang, setelah dimasukkan dalam air. Pada satu conto yang diambil di Wonosegara, walaupun memperlihatkan kandungan Na2O cukup besar (2,89%), namun juga memperlihatkan tingkat mengembang yang kecil.

Dari hasil analisa Scanning Electron Microscope (SEM) komposisi mineral yang dominan terdiri dari mineral-mineral lempung terutama monmorillonite dan halloysite dan sedikit kuarsa serta feldspar. Dari analisa X-Ray Diffraction (XRD), menunjukkan bahwa bentonit daerah penelitian umumnya disusun oleh monmorillonite, halloysite, kaolinit, feldspar, kuarsa-alfa dan kalsit. Berdasarkan analisa methylene blue test, jumlah mineral monmorillonit yang hadir pada bentonit berkisar dari 65-35%. Berat Jenis Bentonit berkisar dari 2,35 – 2,77, dengan harga pH antara 7,30 - 8,00. Kandungan CaO secara umum relatif besar, yaitu berkisar antara 0,9-13,13%. Sedangkan kandungan Na2O relatif kecil, yaitu berkisar anatar 0,07-1,52%.

Sumberdaya bentonit di Kabupaten Boyolali cukup besar, yaitu sekitar 488.802.798 ton. Bahan galian bentonit ini dapat dikembangkan dan digunakan terutama untuk penjernihan minyak sawit.

Kata kunci : bentonit, Boyolali, sumberdaya, minyak sawit

ABSTRACT

Bentonite resources at Boyolali regency, widespread at several districts, that are at district Wonosegoro, Karanggede, Simo and Klego. The biggest bentonit resource was found at Wonosegoro district. Geologically, bentonite at regency Boyolali, associate with Kerek Formation that composed by intercalation between claystones and marls and intercalated calcareous sandstone and tuffaceous sandstone.

Appearances of dry and fresh bentonite at Boyolali area usually showing blue grey coloured up to brownish white, but when does wet will show deep brown to yellowish brown. The bentonit usually have a weak swelling up to not swelling, after entered into a water. Sample that taken at Wonosegara, although show relatively high Na2O content (2,89%), but also show a weak swelling.

Scanning Electron Microscope (SEM) analysis, bentonit in the surveyed area dominantly composed by clay minerals especially monmorillonite and halloysite as well as quartz and feldspar. It is relatively similar with X-Ray Diffraction (XRD) analysis that the bentonit usually composed by monmorillonite, halloysite, kaolinit, feldspar, alfa-quartz and calcite. Based on Methylene Blue Test analysis, indicate that a monmorillonit contain in the bentonite have range from 65-35%. bentonite specific gravity about from 2,35 - 2,77, at the Ph value between 7,30 - 8,00. CaO contain in general relatively high, that is range from 0,9-13,13%, in contrast with Na2O contain, which has a low value, that is about 0,07-1,52%.

Bentonite resource at boyolali regency is big enough, that is around 488.802.798 ton. This bentonite resources can be used especially to improve the quality in palm oil industries.

Key word : bentonite, Boyolali, resources, palm oil